

## CASE STUDY: WINDWARD STREAMLINES PORTFOLIOMANAGEMENT WITH GREYSTONE SOLUTIONS



Using Microsoft® Office XP, Microsoft® SQL Server, and Microsoft® .NET, Greystone Solutions built an automated Portfolio Management System for Windward Investment Management. This solution replaces the time-consuming process of uploading third-party data, manually inputting information into spreadsheets and altering portfolios by hand based on a complex set of investment rules and formulas. In less than two months, Greystone was able to automate this entire system – including embedding complex business logic – all while retaining the interface of choice for Windward employees: Microsoft® Excel.

### Situation

Founded in 1990, Windward Investment Management is an SEC-registered investment advisory firm serving high net worth individuals, trusts, pensions and endowments. To guide investment decisions and manage portfolio risk, Windward uses a proprietary Global Strategies Model, which benefits from over 25 years of research begun at MIT and Wharton.

At one time, the portfolio management process was a tedious and time-consuming implementation of the data, rules and formulas powering the Global Strategies Model. On a regular basis, client portfolios were downloaded from Charles Schwab. The data was then manually input into spreadsheets, with appropriate portfolio adjustments being keyed in along the way. Next the spreadsheets were manipulated by hand using both business logic and elaborate formulas in order to determine what holdings needed to be bought or sold, if any.

Although this manual system delivered accurate results to clients, Windward knew it needed to be streamlined. By automating data entry, Windward hoped to free even more time for strategic portfolio analysis, reduce the possibility of human error, and create an auditable log file of who did what on the system.

“The manual process of portfolio rebalancing was quite time-consuming, requiring about one hour to review a single portfolio,” said Bob Phillips, EVP and CTO of Windward Investments. “This was not an issue when our business first began and we serviced a smaller number of accounts. However Windward now manages portfolios for more than 220 clients. The process had simply become unwieldy and needed to be automated.”

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### Solution Overview

#### Customer Profile

Windward Investment Management is an SEC-registered investment advisory firm serving high net worth individuals, trusts, pensions and endowments.

#### Service Offerings

Integration  
Office Automation

#### Industry

Financial Services

#### Challenge

The investment management company was looking to automate the manual, time-consuming process of portfolio rebalancing.

#### Solution

A Portfolio Management System which automated the entire rebalancing process while retaining the interface of choice for Windward employees: Microsoft® Excel.

#### Microsoft Software Used

- Microsoft® Office XP
- Microsoft® .NET
- Microsoft® SQL Server 2000

#### Benefits

- Automatic information transfers reduce the possibility of data entry errors
- Built-in logic streamlines portfolio rebalancing
- Auditable data log enhances security





### Solution

Windward chose to build their Portfolio Management System with Greystone Solutions, a technology solution provider that specializes in tailored application development. After an in-depth review of Windward's requirements, Greystone decided to build the Windward solution with Microsoft® Office XP, Microsoft® SQL Server, and Microsoft® .NET.

After five weeks of development, Greystone launched Windward's new Portfolio Management System at the company's headquarters in Boston, MA. The solution automated the process of portfolio reviews, including inputting information into a Microsoft® SQL Server database, displaying portfolios in Microsoft® Excel spreadsheets, applying appropriate rules and formulas, and saving all changes back to the database. A flexible and open solution, the Portfolio Management System also allowed portfolio managers to easily edit everything from data to underlying logic.

"Since installing the new Portfolio Management System, we've seen the number of hours needed to balance portfolios drop from 220 to 8, or a 96% reduction in required time," said Phillips. "In addition, these time benefits were immediate as there was no training required on the new interface. Our portfolio managers are already comfortable with the Microsoft® Excel format."

### Solution Architecture

The data repository of the Portfolio Management System was built with Microsoft® SQL Server 2000. Communications between the server and a remote database hosted by Charles Schwab was facilitated by the use of SQL Server's Data Transformation Services. Communications between the server and the portfolio manager's computers were implemented as XML Web Services built using VB.NET, while the portfolio management computational rules were created with Microsoft® Excel and VBA. Finally, communications with the SQL data repository utilize Microsoft's Office XP Web Services Toolkit.

### Benefits

#### Automatic data transfer reduces possible errors

Overall, the new Portfolio Management System eliminates the need for data entry by hand, reducing the possibility of errors and security lapses that can be inherent in manual systems.

To accomplish this, an XML web service links a Microsoft® SQL database at corporate headquarters with any local or web-enabled PC using Microsoft® Excel. Uploads and downloads of information are performed by a web service which includes certain rules about when and how the data is transferred between Charles Schwab, Windward's master database and the Microsoft® Excel spreadsheets which allow portfolio managers to manipulate data.

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-Robert Phillips  
EVP & CTO  
Windward Investments



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## WINDWARD CASE STUDY CONTINUED

The screenshot shows an Excel spreadsheet titled "Windward Investment Management - Rebalance Tool". The spreadsheet is organized into several sections:

- Account Information:** Account Number 222222, Portfolio Name Internat, Sum of All Balances \$468,957.91, Cash \$99,014.11, Date 3/14/03 1:41 PM.
- Current Holdings:** Columns for Security, Number of Shares, Price, Dollar Value of Holdings, and Current Allocation.
- Default Order:** Columns for Dollar Balance of Trades, Action, Security, and Dollar Balance of.
- Overriding Order:** Columns for Action, Resulting Allocation, and Save Date.

Asset Class	Target Allocation	Security	Number of Shares	Price	Dollar Value of Holdings	Current Allocation	Dollar Balance of Trades	Action	Security	Dollar Balance of	Action	Resulting Allocation	Save Date
	100.0%				\$369,171.88		(\$10.00)					\$0.00	
8	5.0%	ALFX	200	49.000	9,800.00	5.4%	(1,341.42)	Sell	ALFX				
9	10.0%	PTEB	376	49.847	18,942.63	10.0%	(75.46)	Sell	PTEB				
13	15.0%	NHPT	650	97.011	63,062.105	14.5%	1,954.70	Buy	NHPT				
17	30.0%	UDN	1000	11,750	11,750.00	30.2%	(399.50)	Sell	UDN				
22	5.0%	SWH	600	69.000	41,400.00	14.7%	975.75	Buy	SWH				
23	5.0%	WTSZ	1800	10.460	18,828.00	5.1%	(64.42)	Sell	WTSZ				
24	10.0%	VPRX	23000	1.660	38,180.00	10.0%	(1,262.83)	Sell	VPRX				
25	10.0%	VPACK	21000	1.700	35,700.00	9.7%	1,217.17	Buy	VPACK				

The Portfolio Management System utilizes Microsoft® Excel as the application interface. Excel was already popular with users at Windward Investments, so choosing it to format the system sped training and implementation time for portfolio managers and IS staff alike.

### For More Information

#### Built-in Logic Streamlines Portfolio Rebalancing

Using Microsoft® Excel as an interface, Greystone creates a powerful spreadsheet for portfolio managers to manipulate client holding information. The system includes embedded business rules which automatically flag portfolio items in need of attention. In addition, built-in formulas calculate possible changes to a client portfolio without requiring manual data manipulation. However, the portfolio manager still retains ultimate control over portfolio rebalancing as the spreadsheet allows for changes to both formulas and underlying logic.

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#### Auditable Data Log Enhances Security

The Portfolio Management System also enables a higher level of accountability for portfolio rebalancing. The solution includes a log of data downloads, access times and names of users. The entire system is easily searchable in case of audit, adding a new layer of security to Windward's back-end processes.

We look forward to hearing from you and hope you build your next project with Greystone!

